



COLSF 8.8.1 VI

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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April 9, 1997

Bill Wedlake  
Spokane County Utilities  
1026 W. Broadway  
Spokane, WA 99260

Dear Mr. Wedlake:

Re: Colbert Landfill\Final Inspection\Infiltration

During our final inspection on April 3, 1997, we were surprised to learn that during the recent period of record precipitation no surface run off from the 40 acre landfill reached the infiltration basin. The reason given was that all run off in the collection system finds its way into the unlined drainage ditch on the western, downgradient perimeter of the landfill where it infiltrates. We are concerned over this infiltration for two reasons:

- a) shallow monitoring well CD-51A1 is less than 75 feet downgradient of the ditch, and
- b) deep extraction wells CP-W3 and CP-W2 are less than 500 feet downgradient of the ditch.

Regarding a): we are concerned infiltration will dilute groundwater in the shallow aquifer and, thus, compromise the shallow well for monitoring the landfill. When we brought this up for discussion it was proposed to continue monitoring and as long as the results were clean no further action would be taken. We do not believe this approach is prudent. We do not believe measuring the water level will tell us anything unless a continuous recording device is used.

We propose a simple volumetric method to gauge the extent of dilution whereby the volume of infiltration is compared to the volume of water required to percolate to the aquifer. The volume of infiltration is easily calculated from landfill design criteria and precipitation. The volume of percolation to the well is the product of the length the unlined ditch and the cross-sectional area of infiltration which is approximated by a trapezoid. The top of the trapezoid coincides with the ditch bottom, and the base of the trapezoid is bounded by the aquifer. The shape of the trapezoid can easily be estimated from the landfill design because percolation was deemed not to intersect the refuse in the landfill. We would employ this method but we don't have the landfill design criteria. We

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would like Spokane County to use this method. If you do not like this method, please propose a method by May 15, 1997 by which dilution can be estimated.

Regarding b): Spokane County has demonstrated to Ecology and the EPA that water level fluctuations in the lower aquifer have increased significantly. The data we observed also showed a dramatic rise in water level. We attribute this rise to percolation from recent periods of heavy precipitation. Water percolating to the lower aquifer in such a short time must certainly pass through the upper aquifer somewhere upgradient of the extraction wells. Given this scenario, we believe it is plausible that the unlined ditch acts as a line source for recharge to the lower aquifer.

To explore this matter we propose a simple method to determine the relative effects of precipitation on the deep extraction wells. First, water level elevations for each deep extraction well for the last few months are plotted on a graph or entered into a computer. A visual or statistical technique is then used to determine if the plots or array of data from CP-W3 and/or CP-W2 are markedly or significantly different than the plots or arrays of the other fluctuations or rises. We would perform this operation but the most recent status report available to us is for the third quarter of 1996 and the elevation data within is current to the Summer of 1995. We ask Spokane County to perform this operation by May 15, 1997 and send the results to EPA and Ecology.

If you have any questions regarding this letter, please contact me at (360) 407-7239 .

Sincerely,



Michael Kuntz

MK:gj

cc: Neil Thompson, EPA  
Steve Holderby, Spokane County Health District